

What is claimed is:

1. A ferritic steel sheet concurrently improved in formability,
high-temperature oxidation resistance, high-temperature strength, and
5 low-temperature toughness comprising, in mass percent

C : not more than 0.02%,

Si : 0.7 – 1.1%,

Mn : not more than 0.8%,

Ni : not more than 0.5%,

10 Cr : 8.0 to less than 11.0%,

N : not more than 0.02%,

Nb : 0.10 – 0.50%,

Ti : 0.07 – 0.25%,

Cu : 0.02 – 0.5%,

15 B : 0.0005 – 0.02%,

V : 0 (no addition) – 0.20%,

one or both of Ca and Mg : 0 (no addition) – 0.01% in total,

one or more elements among Y and rare earth elements : 0 (no
addition) – 0.20% in total, and

20 the balance of Fe and unavoidable impurities,

and having a chemical composition satisfying all of Equations (1) – (3):

$$3 \text{ Cr} + 40 \text{ Si} \geq 61 \dots\dots\dots (1)$$

$$\text{Cr} + 10 \text{ Si} \leq 21 \dots\dots\dots (2)$$

$$420 \text{ C} - 11.5 \text{ Si} + 7 \text{ Mn} + 23 \text{ Ni} - 11.5 \text{ Cr} - 12 \text{ Mo} + 9 \text{ Cu} - 49 \text{ Ti} -$$

25 $25 (\text{Nb} + \text{V}) - 52 \text{ Al} + 470 \text{ N} + 189 \leq 70 \dots\dots\dots (3).$

2. A steel sheet according to claim 1, wherein the content of V is
0.01 – 0.20%.

- 30 3. A steel sheet according to claim 1, wherein the content of one or
both of Ca and Mg is 0.0003 – 0.01% in total.

4. A steel sheet according to claim 1, wherein the content of one or more elements among Y and rare earth elements is 0.01 – 0.20% in total.

5 5. A steel sheet according to claim 1, further including
Mo : not more than 0.50% and
Al : not more than 0.10%.

10 6. A steel sheet according to any of claims 1 to 5, which has a
metallic structure obtained by cold rolling and annealing a partially
recrystallized hot-rolled sheet.

15 7. A steel sheet according to any of claims 1 to 5, which has a
metallic structure obtained by cold rolling and annealing a totally recrystallized
hot-rolled sheet

8. A steel sheet according to any of claims 1 to 7, which is used as
fabricated into an automobile engine exhaust gas passage component.